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NAVAL WAR COLLEGE
Newport, R.I.

United States Air Force Operational Education, Training and Organization

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Joint Maritime Operations Department.

The contents of this paper reflect my own views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

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February 1998

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19980709 052

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DTIC QUALITY INSPECTED 1

DISTRIBUTION STATEMENT A

Approved for public release;
Distribution Unlimited

REPORT DOCUMENTATION PAGE

1. Report Security Classification: UNCLASSIFIED			
2. Security Classification Authority: N/A			
3. Declassification/Downgrading Schedule: N/A			
4. Distribution/Availability of Report: DISTRIBUTION STATEMENT A: APPROVED FOR PUBLIC RELEASE; DISTRIBUTION IS UNLIMITED.			
5. Name of Performing Organization: JOINT MILITARY OPERATIONS DEPARTMENT			
6. Office Symbol: C		7. Address: NAVAL WAR COLLEGE 686 CUSHING ROAD NEWPORT, RI 02841-1207	
8. Title (Include Security Classification): United States Air Force Operational Education, Training and Organization (U)			
9. Personal Authors: Kenneth S. Wilsbach, Major, United States Air Force			
10. Type of Report: FINAL		11. Date of Report: 13 Feb 1998	
12. Page Count: 31			
13. Supplementary Notation: A paper submitted to the Faculty of the NWC in partial satisfaction of the requirements of the JMO Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.			
14.			
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16. Distribution / Availability of Abstract:	Unclassified X	Same As Rpt	DTIC Users
17. Abstract Security Classification: UNCLASSIFIED			
18. Name of Responsible Individual: CHAIRMAN, JOINT MILITARY OPERATIONS DEPARTMENT			
19. Telephone: 841-6461		20. Office Symbol: C	

Abstract of

**UNITED STATES AIR FORCE OPERATIONAL EDUCATION, TRAINING AND
ORGANIZATION**

The operational competencies of Air Force officers are a result of their education, training and experience. The organization of the service also provides some degree of experience by supplying the officer with leadership opportunities. The paper asserts that changes can be made in these areas to improve the jointness of the service and prepare junior officers for future senior leadership positions. These changes include: more joint curriculum at junior level professional military education courses, exposure to true joint operational training exercises, and reorganization of Air Force units to promote joint interoperability.

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Research Question: Does the United States Air Force foster its junior officers to lead at the highest levels and organize its operational forces in a manner that promotes jointness?

Research Thesis: The United States Air Force does not optimally prepare junior officers for senior command and does not organize in a fashion which fully promotes jointness.

Introduction

Since the advent of the Goldwater-Nichols Act of 1986, each of the services has reorganized to operate more efficiently in the joint arena. However, is the Air Force taking all the necessary steps to prepare its officers and to organize its forces to fully fit into the joint scheme? These are the questions this paper will address.

There have been very few Commanders-in-Chief (CINCs) of major Regional Unified commands (CINACOM, CINCPAC, CINCCENT, CINCEUR, CINCSOUTH) which have been Air Force Generals. Some have suggested that an Air Force General Officer commanding such a unit would be less than optimum. Why do the other services, and even some Air Force officers think this way? If the Air Force is truly a full fledged member of the Department of Defense, then why couldn't an Air Force general be a war-fighting CINC? Are they less qualified than their sister service colleagues for these positions? This paper intends to look at the answer to these questions by evaluating the education and training of Air Force officers, as well as the organization of the service. The intent is determine whether these factors contribute to a lack of leadership potential for USAF officers, and if so, what changes could be made to better prepare them for major joint commands. A final intent of this paper is to determine if the Air Force is optimally organized to operate in the joint environment, and if not, to suggest ways the Air Force could change its organization to improve this capability.

What characteristics allow officers to lead at the joint level? Drew said, *"In my judgment, the recipe that produces superior military leaders has three ingredients—training, experience, and education."*¹ This paper will look to break down the career path of typical operational Air Force officers and evaluate their education and training with respect to performing joint tasks (see Appendix A to review a typical career path). The organization that the service provides the member also contributes to the "on the job training" or experience that each officer receives as he progresses through the ranks. It is this organization that the author will critique to evaluate if changes are needed in order to provide officers with incremental increases of responsibility and leadership experience throughout their careers.

To limit the scope of this paper the discussion will be restricted to the typical operational officer. By "typical operational officer" the author is referring to rated officers in combat, and combat support positions such as fighter, bomber, tanker, and reconnaissance aircrew.

What are the components of joint competence with respect to a senior leader? First the officer must have high quality leadership skills. A second requirement in a joint command is an understanding of each of the services' capabilities and limitations. Loyalty to the joint command rather than his parent service is a third component. A final consideration is the officer's ability to think strategically. In other words, he must be able to interpret the wishes of the National Command Authorities (NCA) and strategic military leadership into operational objectives. These competencies may come naturally to some officers, but most require some

¹ Drew, Dennis M. "Educating Air Force Officers" Air Power Journal Online. <<http://www.cdsar.af.mil/apj/sum97/drew.html>> (21 January 1998).

(Unclassified)

form of training or education to cultivate these skills. In addition, these abilities are also sharpened through experience acquired during a long career.

Education of the USAF Officer

*"Professional education allows us to vicariously take part in the experiences of others in different times and far-off places."*² Professional Military Education (PME) is the cornerstone of joint military training, and partially provides the USAF officer with a level of joint competence. The PME of all USAF officers begins during their commissioning source whether that be the Air Force Academy, Reserve Officer Training Corps (ROTC), or Officer Training School (OTS). Each of these curricula contains at least a minimal level of military and leadership material. However, the joint portion of the training is insignificant. USAF ROTC curriculum is displayed in Table I. Note that it is very heavily weighted with USAF material with little attention to jointness.

Table I³

Reserve Officer Training Corps Curriculum Summary

<i>Course of Study</i>	<i>Academic Hours</i>
<i>The Air Force Today</i>	<i>60.25</i>
<i>The Air Force Way</i>	<i>46.25</i>
<i>Air Force Leadership and Management</i>	<i>41.25</i>
<i>Preparation for Active Duty/National Security Affairs</i>	<i>22.75</i>
<i>Total</i>	<i>300.5</i>

Likewise OTS curriculum, outlined in Table II, devotes little time to jointness.

² Ibid.

³ "Air Force Reserve Officer Training Corps" Air University Online Catalog. 13 March 1997. <<http://www.au.af.mil/au/cat/afrotc.html>> (31 December 1997).

Table II⁴*Officer Training School Curriculum Summary*

<i>Course of Study</i>	<i>Academic Hours</i>
<i>Leadership Studies</i>	<i>60.25</i>
<i>Communication Skills</i>	<i>46.25</i>
<i>Professional Knowledge</i>	<i>41.25</i>
<i>Defense Studies</i>	<i>22.75</i>
<i>Military Training and Application</i>	<i>130</i>
<i>Total</i>	<i>300.5</i>

The U.S. Air Force Academy (USAFA) seems to offer more joint education than ROTC and OTS, but only by a small margin. The Academy Web page states, *"The Military Art and Science (MAS) curriculum ... addresses military professionalism, officership, airpower theory and doctrine, force employment, military theory and the art of war."*⁵

As the young officers enter service they are trained in specific weapons systems, for example a bomber aircraft.

*"The services differ in how they interpret the definition of professional military education as defined in the Military Education Policy Document. For example, the Army considers an officer's basic course in a warfare specialty such as infantry or logistics as part of professional military education, while the Air Force does not."*⁶

Therefore the USAF does not consider C-17 training, for instance, as a part of an officer's Professional Military Education. The result is that the training is very technically oriented, most of which is designed around operating the aircraft in the prescribed role.

⁴ "Officer Training School" Air University Online Catalog. 13 March 1997. <<http://www.au.af.mil/au/cat/ots.html>> (31 December 1997).

⁵ "Professional Military Education" United States Air Force Academy Web Site. <<http://www.usafa.af.mil/rr/pubs/chal/c9.htm>> (16 January 1998).

⁶ United States General Accounting Office, Military Education: Information on Service Academies and Schools. Briefing Report to Congressional Requesters. (Washington: 1993), 2.

The next formal education course nearly all USAF officers attend is Squadron Officer School (SOS).

*"Squadron Officer School (SOS) is the initial course in the Air Force officer professional military education (PME) system...SOS's goal is to help officers grow professionally. While here, officers step out of their specialties and broaden their focus on officership, the Air Force's core values, and the Air Force as an institution in the profession of arms."*⁷

This course is designed for Captains (O-3) and contains little, if any, joint training. In fact, a glimpse at the curriculum, displayed in Table III, shows SOS concentrates primarily on Air Force topics. Additionally, when compared with the pre-commissioning education there is little added material, making its value questionable.

Table III⁸

SOS Curriculum Summary

<i>Course of Study</i>	<i>Academic Hours</i>
<i>Area 1: Officership Values</i>	<i>38.75</i>
<i>Area 2: Officership Application</i>	<i>81.5</i>
<i>Area 3: Leadership Tools</i>	<i>62</i>
<i>Area 4: Air and Space Power</i>	<i>22.75</i>
<i>Total</i>	<i>205</i>

Following SOS, the next opportunity for formal PME for the USAF officer is Air Command and Staff College or a sister service Intermediate Service School (ISS). About 500 USAF officers attend ISS each year.⁹

"Air Command and Staff College (ACSC), the Air Force's intermediate professional military education (PME) school, prepares field grade officers of

⁷ "Squadron Officer School" Air University Online Catalog. 13 March 1997. <<http://www.au.af.mil/au/cat/sos.html>> (31 December 1997).

⁸ Ibid.

⁹ "Intermediate/Senior Service School Questions and Answers" United States Air Force Manpower Personnel Center Web Site. 18 December 1997. <<http://www.afpc.af.mil>> (1 February 1998).

*all services (primarily majors and major selectees) and US civilians to assume positions of higher responsibility within the military and other government arenas. Geared toward teaching the skills necessary for air campaign planning as well as leadership and command, ACSC focuses on shaping and molding tomorrow's leaders."*¹⁰

ISS is the first time a USAF officer receives any significant formal joint education, although the amount of joint emphasis primarily depends on which service school the officer attends. The Joint Chiefs have prescribed a minimal amount of joint education which all the schools must meet.

A closer look at ACSC's curriculum, outlined in Table IV, shows that the course has some jointness included, but primarily deals with educating the officer to plan "air campaigns" in a joint environment. Planning a joint air operation and understanding how the entire joint process works is entirely different.

Table IV¹¹

ACSC Curriculum Summary

<i>Course of Study</i>	<i>Academic Hours</i>
<i>Leadership and Command</i>	<i>55</i>
<i>War and Conflict</i>	<i>21</i>
<i>War Theory</i>	<i>49</i>
<i>Strategic Structures</i>	<i>67</i>
<i>Operational Structures</i>	<i>69</i>
<i>War Termination</i>	<i>25</i>
<i>Joint Operations and Campaign Concepts</i>	<i>78</i>
<i>Theater Air Campaign Studies</i>	<i>73</i>
<i>Joint Warrior</i>	<i>52</i>
<i>Campaign 2025</i>	<i>26</i>
<i>Total</i>	<i>515</i>

¹⁰ "Air Command and Staff College" Air University Online Catalog. 13 March 1997. <<http://www.au.af.mil/au/cat/acsc.html>> (31 December 1997).

¹¹ Ibid.

The next formal military education in an officer's career occurs with the Senior Service School (SSS) designed for Lieutenant Colonels and Colonels. About 250 USAF officers attend one of the Senior Service Schools each year.¹² The USAF sponsored course, Air War College (AWC), stresses joint operations quite well.

*"The school develops the knowledge, skills, and attitudes significant to the profession of arms with emphasis on aerospace power and its application in joint and combined operations...The mission of the Air War College is to educate senior officers to lead at the strategic level in the employment of air and space forces, including joint operations, in support of national security."*¹³

A further examination of AWC's curriculum, displayed in Table V, shows the joint emphasis is quite large.

Table V¹⁴

Air War College Curriculum Summary

<i>Course of Study</i>	<i>Academic Hours</i>
<i>Department of Conflict and Change</i>	48
<i>Department of Leadership and Ethics</i>	37
<i>Block I—The Strategic Environment</i>	
<i>Block II—Individual Leadership and Ethics</i>	
<i>Block III—Organizational Leadership and Ethics</i>	
<i>Block IV—Leadership and Ethics Challenges for Tomorrow</i>	
<i>Department of International Security Studies</i>	58
<i>Block I—Understanding Security Studies</i>	
<i>Block II—US National Security Focus</i>	
<i>Block III—Transnational Security Focus</i>	
<i>Block IV—Regional Security Focus</i>	

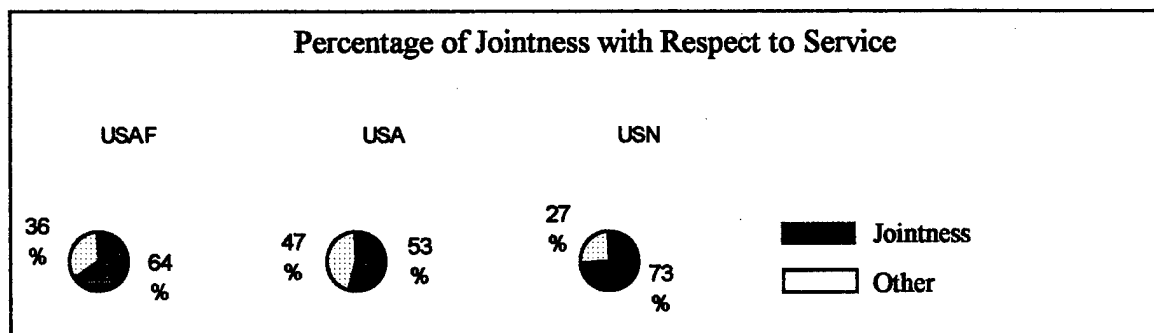
¹² "Intermediate/Senior Service School Questions and Answers" United States Air Force Manpower Personnel Center Web Site. 18 December 1997. <<http://www.wafpc.af.mil>> (1 February 1998).

¹³ "Air War College" Air University Online Catalog. 13 March 1997. <<http://www.au.af.mil/au/cat/awc.html>> (31 December 1997).

¹⁴ Ibid.

<i>Block V—Strategic Choices for the United States</i>	
<i>Department of Strategy, Doctrine, and Air Power</i>	52
<i>Block I—Theory and Innovation</i>	
<i>Block II—Theory and Reality</i>	
<i>Block III—Reality and Doctrine</i>	
<i>Department of Joint Force Employment</i>	130
<i>Block I—Forces and Capabilities</i>	
<i>Block II—Joint Warfighting</i>	
<i>Block III—National Defense Exercise</i>	
<i>Core Electives Program</i>	192
<i>Regional Studies Program (Academics and Field Study)</i>	104
<i>Orientation</i>	10.5
<i>TOTAL—Resident Program</i>	631.5

A recent study conducted by the Government Accounting Office looked at how much jointness was covered in each of the Senior Service Schools. Figure 1 shows the results of the study. Notice that the Air Force falls between the Navy and the Army with respect to how much joint is taught at AWC.

Figure 1¹⁵

Finally, many USAF officers attend Armed Forces Staff College (AFSC). This course is designed as a supplement to either ISS or SSS. *"The mission of AFSC is to educate staff*

¹⁵ United States General Accounting Office. Professional Military Education at the Three Senior Service Schools, Report to the Chairman, Panel on Military Education, Committee on Armed Services, House of Representatives. (Washington: 1991), 17.

officers and other leaders in joint and combined operational planning and warfighting to instill a primary commitment to joint teamwork, attitudes, and perspectives."¹⁶

So the education of the typical officer begins with very service oriented goals and limits the amount of joint emphasis early in an officer's career. The amount of joint education is expanded as the officer increases in rank and takes on more responsibility in the joint arena. The philosophy is that most junior officers operate in primarily an Air Force or very limited joint environment and thus do not require joint education. As a result of promotion, officers are more likely to work in the joint sphere, so joint education is increased to accommodate the officer's need. This philosophy is in line with the General Accounting Office's recommendations to Congress.¹⁷ However, is this philosophy of education what the country needs to prepare USAF officers for joint command at senior levels?

Limiting the amount of joint curriculum early in an officer's career is reasonable, but eliminating joint education altogether is, in the author's opinion, a mistake. USAF officers should have a basic understanding of sister service operations in order to conduct their duties more efficiently. The junior and intermediate level courses sponsored by the Air Force tend to have a very strong emphasis on the USAF while neglecting opportunities to teach joint doctrine and capabilities. However, increasing joint education at earlier periods in an officer's career would reduce the amount of service specific education that can be offered given a fixed

¹⁶ "Armed Forces Staff College Learning Objectives" Armed Forces Staff College Web Page. <<http://www.dtic.mil/jcs/text/57/me/omep/afsc/.html>> (16 January 1998).

¹⁷ United States General Accounting Office. Status of Recommendations on Officers' Professional Military Education. Briefing Report the Chairman, Panel on Military Education, Committee on Armed Services, House of Representatives. (Washington: 1991), 20-21.

course duration. So a proper balance must be established between USAF education and joint education, but more jointness should be taught at the junior and intermediate level schools.

In summary, four major options are available for developing USAF PME:

1. Decrease the time spent in education.
2. Make no changes to the current curriculum.
3. Increase the opportunities for education.
4. Increase the amount of joint curriculum while maintaining established course lengths.

Reducing or making zero changes to the curriculum obviously would not solve the problems already described. However, based on the amount of time a typical officer spends in education, additional course time would be very difficult to inject without career consequences. (Currently, USAF officers spend about 2 and one half years during the first 20 years of their careers in PME. This does not normally include a Masters Degree syllabus which is currently required to attain Lieutenant Colonel.) Finally, increasing the amount of joint curriculum at the current schools would be beneficial, especially at the junior level courses. A more streamlined approach that would eliminate unnecessary service oriented curricula and increase joint material would be beneficial. This change would increase the amount of joint education at the remaining courses, reducing the amount of time the officers spend in classrooms, and freeing them up to acquire more skills through training and real world experiences.

Training of the USAF Officer

There are several methods whereby officers receive joint operational training. The first takes place during formal training courses where the officer receives instruction in operating his or her particular aircraft. The second occurs in the daily training missions and real world operations. The third is received during large force exercises such as Red Flag or Cope Thunder. Joint and exchange assignments also provide a large degree of joint training. Finally, training is not limited to operations, as some jointness is acquired while working on a staff.

The initial training of an operational USAF officer is very technically oriented, focusing on operating the aircraft the officer has been assigned to fly. Very little joint training is received. As officers increase in experience they are exposed to training opportunities, giving them experience in the joint environment. Typical of these is the Red Flag Exercise which attempts to replicate aerial warfare in the Nevada desert. However this exercise is limited to the air war and does not attempt to combine the ground and maritime portion of joint operations. In fact, very few opportunities are available for large scale joint exercises that combine air, sea, and ground forces. This limits the USAF officer's exposure to the other services and minimizes joint training opportunities.

One method USAF officers receive exposure to other services is by being assigned as an exchange officer to sister services and allied nations. While these programs are very worthwhile for allowing the USAF officer to experience and operate with units outside the Air Force, very few officers actually receive exchange assignments. By expanding the exchange program, all services would have a built-in method to improve joint capability. In addition,

most exchange assignments are reciprocal. In other words if a USAF officer is assigned to the Navy, a Naval Aviator is assigned to the Air Force. It is normally a one-for-one exchange.

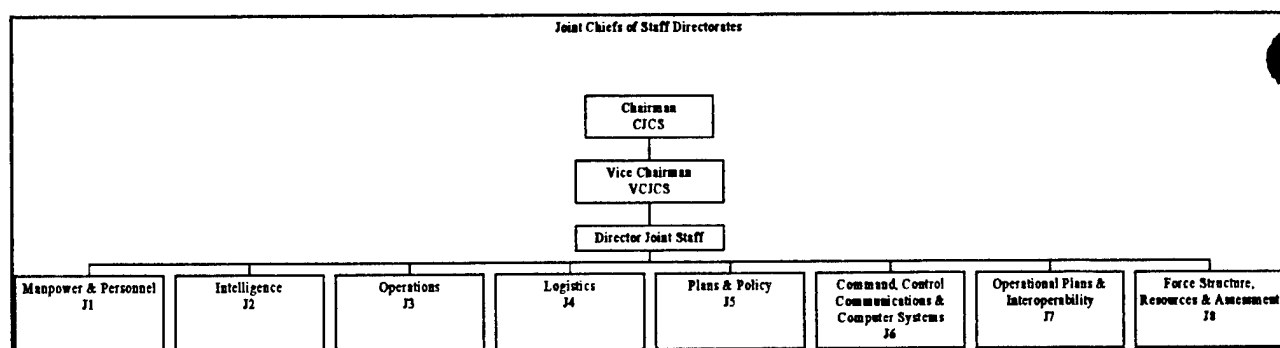
Joint training is very limited, which restricts USAF exposure to the other services. As a result Air Force officers are generally ignorant of sister service operational capabilities, and certainly not experts in joint employment. Unless an officer has obtained experience with the other services he may be deficient in the skills required to lead those forces in the future.

Organization of the USAF

Air Force Manual 1-1 volume II states the USAF should “*organize for wartime effectiveness*”.¹⁸ Since most operations are fought jointly, the USAF should organize to efficiently cooperate with the other services. The question is, does the Air Force organization provide for such cooperation?

To begin with, the functional area organization and abbreviations of Air Force units are confusing to non-USAF personnel. For example, in a joint unit the commander is abbreviated J00, while in an Air Force unit, the commander is abbreviated CC. The USAF Director of Operations is abbreviated DO while in a joint command this is abbreviated J3. Figure 2 displays the manner in which the joint staff is organized and abbreviated.

Figure 2¹⁹



The other services abbreviate and organize their forces similarly to the joint method. The Air Force is the only service which does not use such a system. Figure 3 shows how the Commander in Chief of the Pacific Fleet (CINCPACFLT) has divided the workload on his staff. Note the directorate abbreviations that closely resemble the joint staff.

¹⁸ United States Air Force. Air Force Manual 1-1, Volume II, Basic Aerospace Doctrine of the United States Air Force. Washington: 1992. 229.

¹⁹ Davis, Monique Y., ed. Defense Organization Service. Washington, D.C.: Carroll Publishing Company, 1994. 20.6-20.6.1.

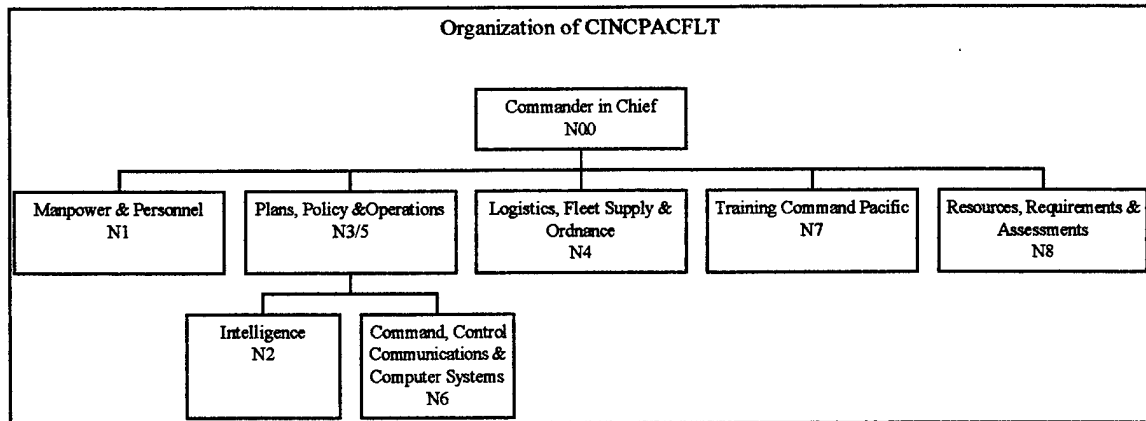
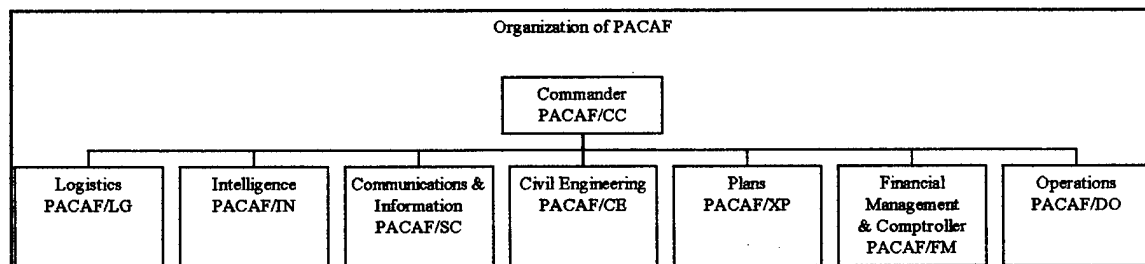
Figure 3²⁰

Figure 4 displays the Pacific Air Forces (PACAF) organization, the sister component of CINCPACFLT.

Figure 4²¹

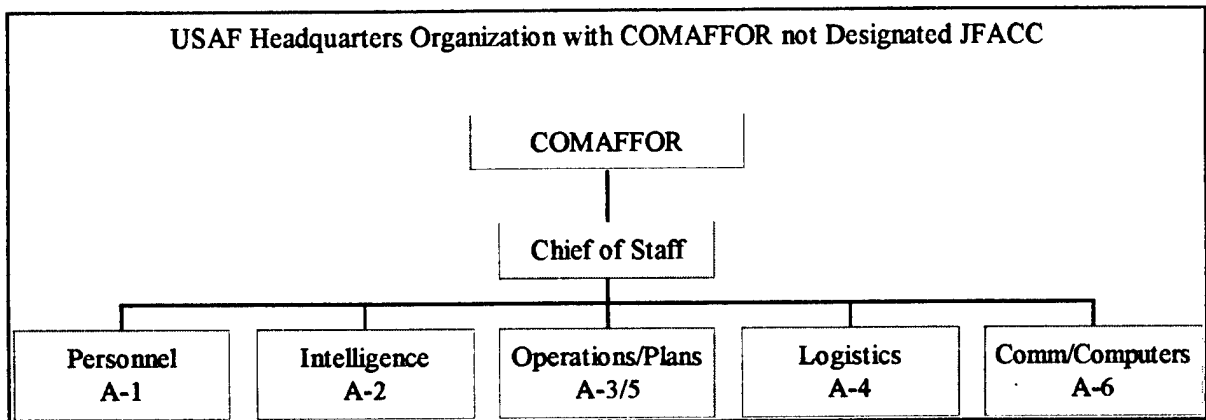
The directorates in PACAF are similar to those in CINCPACFLT or the Joint Staff, although the abbreviations are different. The Air Force uses a common abbreviation for functional areas. The proper syntax is **UNIT/POSITION**. For example the Pacific Air Force Commander is abbreviated **PACAF/CC**. A list of the common functional area abbreviations is contained in Appendix B. Since the USAF is the only service which uses these abbreviations it makes it difficult for other services to understand the service or unit

²⁰ Ibid., 23.3.6.9.

²¹ Ibid., 21.2.14.

organization. It would not require substantial effort to re-organize the USAF to adopt the joint method to organize and abbreviate the commands. In fact, the Draft version of Air Force Doctrine Document 2 (AFDD-2) provides a sample "A-Staff" which is depicted in Figure 5.

Figure 5²²



Categorizing USAF units in this fashion would enable other services to better understand the organizational structure and make the Air Force more joint oriented. This change would position the Air Force to be organized for wartime employment on a full-time basis.

Another problem with the USAF organization originates at the squadron level. Due to the manner in which squadrons are organized, officers are not provided with incremental increases in responsibilities as their careers progress (see Appendix C for a description of a typical USAF squadron organization). The mid-level Captain is limited to supervising a maximum of about 6 officers and possibly a few enlisted members. The typical career path will take a Major out of the squadron to attend ISS and obtain staff experience. The next time the officer reports back to a squadron is to serve as the Operations Officer or Squadron Commander as a Lieutenant Colonel. The jump in responsibility is immense. The Squadron

²² United States Air Force. Global Engagement: Air and Space Power Organization and Employment, Air Force Doctrine Document 2, Draft. Washington: 10 October 1997. 29.

Commander is responsible for 12-24 aircraft and up to 400 personnel. This is all without any intermediate increase in responsibility from the mid-level Captain to Squadron Commander.

Since the other services are organized to allow junior officers to lead and even command at lower levels they experience an increased level of responsibility which is normally not available to the USAF officer until later in his career. As a result, the USAF officer's leadership skills may be inferior to his Army, Navy and Marine Corps peers beginning at the senior O-3 and higher ranks. This may result in Air Force officers being less qualified to lead at the senior levels due to a differential in leadership experience compared to their sister service counterparts. A reorganization of the squadron would provide these incremental steps and give the junior officer an opportunity to improve leadership qualities that he or she will need in the future. The U.S. Navy flying squadron organization provides a model of incremental steps in leadership (See Appendix D for additional information). If the USAF would organize its squadrons much like the Navy, department head positions would be created providing the intermediate link in leadership opportunities the Air Force is currently lacking. These changes would bring USAF officers on par with sister services in this area.

In summary, the organization of the headquarters units is not in line with wartime employment and causes confusion among other service members. At the squadron level the organization does not promote leadership training to the maximum extent, and denies USAF officers of precious opportunities to attain valuable experience at leading increasing numbers of troops prior to the senior level.

Conclusions and Recommendations

Education:

The USAF officer spends about two and one half years out of the first 20 attending PME, not including personal time used to acquire a masters degree. This reduces the officer's ability to gain operational experience. The education received is very USAF oriented until the intermediate and senior courses are attended. The junior courses give only cursory glances at joint topics. The recommendation is to reduce the time an officer spends in formal education to allow further operational experience and to increase the amount of joint education earlier in the officer's career. The reduction in education could be achieved by relieving the requirements to attend all three formal PME courses. Currently the Squadron Officer School (SOS) provides very little value-added learning to the operational officer that was not previously covered in the officer's precommissioning education. Additionally, a requirement to attain an additional master's degree could be alleviated by gaining full accreditation at all intermediate and senior service schools. A masters degree could be awarded for successfully completing the course. These changes, among other benefits, would allow officers to concentrate on joint and operational competencies and increase the USAF's operability with other services.

Training:

Training in specific weapons systems does not include any appreciable amount of jointness, and exposure to joint training exercises is very limited. Combining air, land and sea forces in training is nearly non-existent. Operational exercises such as Red Flag should concentrate on making exercises more joint by incorporating land and sea forces.

Finally, exchange assignments are limited, but provide a great deal of joint training and experience. The number of joint assignments should be increased to give officers more chances to be exposed to sister services, making the USAF more jointly compatible.

Organization:

The organization of the Air Force can be confusing to other service members and serves as a hindrance to jointness. The Air Force should reorganize its headquarters units to fall in line with the joint model to provide increased compatibility with sister services.

In addition, the Air Force squadron organization does not provide an incremental increase in leadership opportunities for junior officers rising through the ranks. This denies them opportunities to foster command skills and puts them behind sister service counterparts. Air Force squadrons should be reorganized to provide mid-level officers increased responsibilities in order to prepare them for future command positions.

Since Congress has mandated the services strive for increased jointness it is the responsibility of the services to comply. The United States Air Force is the premier aerospace force in the world, but there are still changes that can be made to increase joint operational capabilities. After all, even though the USAF is the best in the world, it is still a team effort with the Army, Navy and Marine Corps.

Appendix A

Table VI

Typical Career Path of Operational USAF Officers

Year	Assignment	Rank
1	Joint Undergraduate Pilot or Navigator Training	O-1
2	Weapons System Specific Training	O-1
3-6	Operational Assignment	O-2 - O-3
6-9	Alpha Tour*	O-3
9-12	Operational Assignment	O-3 - O-4
13	Intermediate Service School	O-4
14-17	Staff Assignment	O4
17-20	Operations Officer/Squadron Command Tour	O-5

* an Alpha Tour is an assignment outside the primary weapons system. It can be an exchange assignment or duty in a secondary mission aircraft like training new pilots.

Appendix B

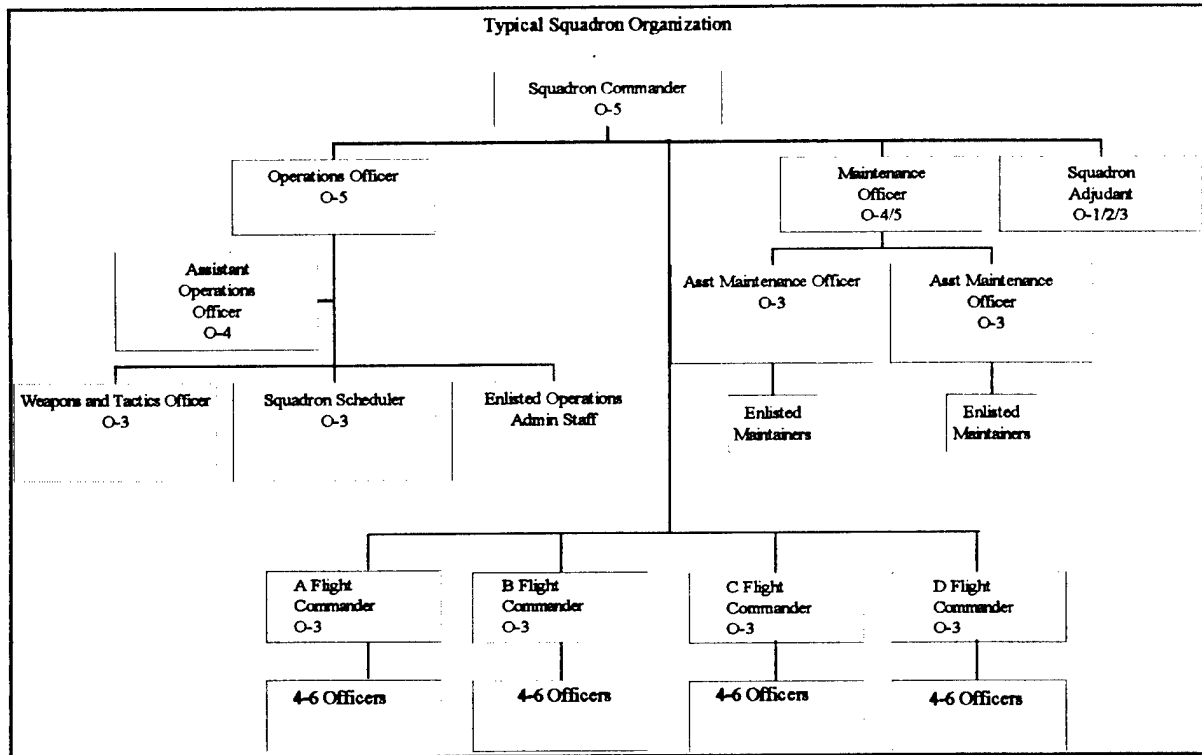
Table VII

Common USAF Functional Area Abbreviations

Abbreviation	Position
CC	Commander
CE	Director of Civil Engineer
CV	Vice Commander
DO	Director of Operations
DP	Director of Personnel
IN	Director of Intelligence
LG	Director of Logistics
MA	Director of Maintenance
SC	Director of Communications and Information
XP	Director of Plans

Appendix C

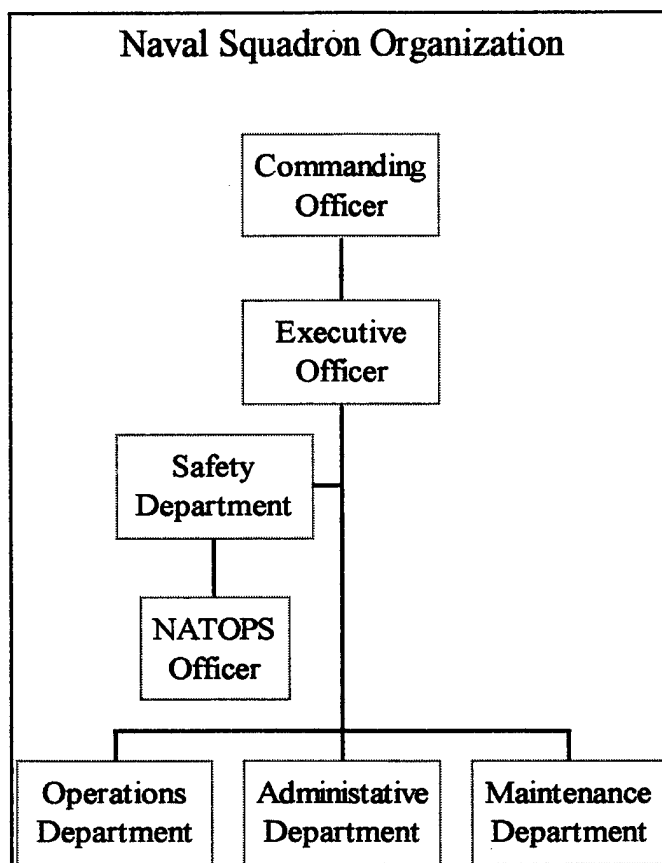
Figure 6



- Operations Officers typically serves as the Vice Commander of the Squadron

Appendix D

Figure 7²³



- Each department head is lead by a senior O-3 or O-4 and is staffed by a number of junior officers and enlisted members.

- This organization provides mid-level officers with incremental steps in responsibilities and provides training for future leadership positions.

²³ United States Navy, OPNAVINST 3120.32C. Washington: 11 April 1994. 2-11.

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